Assistive Tongue Operated Mouse

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In this modern age the use of computer on a regular basis in our daily life is very significant, technically, all the daily tasks revolve around the computer screens. Therefore, people who have disabilities often face difficulty in communicating with PCs. There exists an always present requirement for improved assistive technology that can enable people with engine work inabilities to contend in the advanced occupation market. This novel investigation was conducted to develop a low cost, noninvasive tongue operated USB HID mouse termed as ATOM (Assistive Tongue Operated Mouse) an assistive technology peripheral that could be used by someone living with a major spinal cord injury or ALS, who has little to no capability of fine motor control on their extremities and could effectively control a computer curser through tongue and buttons-presses. ATOM was developed using a plastic retainer, flat ribbon cable, tactile switches and a pointing stick with an Arduino micro pro (micro-controller). The hardware and software fabrication involves programming USB HID mouse software, which monitors GPIO activities (including button clicks and cursor movement) with button presses and then translates into programmable keystrokes. Through testing the peripheral, various tasks could be performed i.e., manipulating the computer cursor, typing words through buttons. Moreover it takes time to get adapted towards using the tongue operated mouse, enabling those affected to efficiently and cheaply interface with computers can grant more opportunities to reconstruct and maintain social relationships to better fit their own needs. The ATOM can help individuals do precisely that by bridging a gap within the existing technologies by offering a high efficiency device combined with low cost.

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